ON A NEW SPECIES OF *LOPHOPODELLA* (POLYZOA).

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(With a Figure in the text.)

I. Introduction.

The species about to be described was obtained by Mr. A. R. McCulloch, of the Australian Museum, in February 1920, from the Nepean River, New South Wales. The specimens are from the same locality as, and are specifically identical with, those obtained by him for Dr. Goddard in 1909. These latter were placed in an aquarium, where they died, and were in a state of decomposition when seen by Dr. Goddard, only the statoblasts being entire. Of these he says,[1] "Species of *Plumatella* occur in New South Wales, which, judging from the nature of the statoblasts, differ from any known species"; and in the next paragraph, "Mr. A. McCulloch found in the Nepean River, a mass of Polyzoa growing on a submerged stick; and judging from the nature of the statoblasts we have in this a new form."

More recent work on the Phylactolaematous Polyzoa, notably that of Annandale,[2] has now brought this group into more stable form; his key and diagnosis of the genus *Lophopodella* is here amended, his nomenclature being retained. In the preparation of this paper my thanks are due to Mr. A. R. McCulloch, of the Australian Museum, for the preparation of the figures; to Messrs. Kinghorn and Musgrave of the same institution for the collecting of additional material; and to Mr. E. A. Briggs of the University of Sydney for his kindly advice and assistance.

2. Methods of Preparation.

As I had a large amount of material at my disposal, several methods of preservation were tried; but some of these, although successful with *Fredericella*, failed when applied to *Lophopodella*. The two most successful methods are here detailed, the former giving quite the best results:—

1. The living material was placed in a petri dish, and crystals of Chloral Hydrate were gradually added to the water; when complete anaesthetisation was apparent, and there was no response from the tentacles on being irritated, the specimens were transferred to a fixative recommended by Bles.[3] This fixative is:—

70% Alcohol	90 cc.
Glacial Acetic	3 cc.
Formalin	7 cc.

1. Goddard, *Proc. Linn. Soc. N.S. Wales*, XXIV,. 1909, p.488.

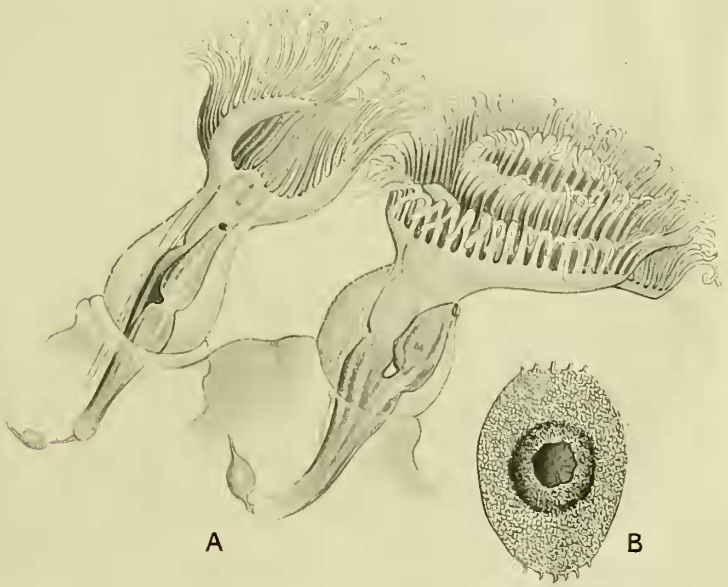
2. Annandale, *Fauna of British India, Freshwater Sponges, Hydroids and Polyzoa*, 1911.

3. Bles, *Trans. Roy. Soc. Edin.* XLI., 1905, p.792.

Subsequently they were transferred to 70% Alcohol, stained with Erlich's Haematoxylin, and mounted in canada balsam in excavated cells.

2. The specimens were anaesthetised as above and were transferred to a fixative of 10 % solution of Copper Sulphate[4]; then to 70 % alcohol, stained with Erlich's Haematoxylin, and mounted in Canada balsam in excavated cells.

In the second method it was found that over fixation in Copper Sulphate caused the specimens to become more or less opaque, and it was hard to determine a period for effective fixation by this method. Material fixed by these methods will preserve well in 70 % Alcohol or 5 % Formalin.



Lophopodella picta Bretnall. A, two polyps; B, a statoblast.

3. The Genus *Lophopodella*.

The diagnosis of the genus *Lophopodella* as given by Annandale both in the key on p. 212 and in the diagnosis on p. 231, may lead to some confusion. In the former it is stated that the "zoaria remain single throughout life"; and in the latter "Polyparia do not form compound colonies." Both these statements would seem to suffer contradiction on reference to the text-figures (especially that on p. 172) and the plate; a contradiction that is not lessened by a further explanation on p. 234 that "Although the zoaria do not form compound colonies by secreting a common membrane or investment, they are markedly gregarious" Rousselet[5] founded the genus on the statoblast of his genotype (*Lophopus thomasi*); but he

4. As recommended by Harmer, *Cambridge Natural History, Worms Rotifers and Polyzoa*, 1896, p.522.

5. Rousselet, *Journ. Quekett Mic. Club* (2) IX., 1914-6, p.51.

refers to the description of the living colony supplied by the collector after whom the species was named. "The zoarium (or coenoecium of Allman) that is the whole colony stock, consists of an oval patch of stiff, gelatinous hyaline substance (t. 1, 2) about two inches and a half inches long, by one and a quarter inches broad, and about an eighth of an inch thick, with branching tubular channels radiating from the centre, which were tenanted by numerous polypides. The polypides protruded all around the edge, and on the surface of the gelatinous ectocyst, leaving however a central oval space quite free of them."

From this data, and from the material at my disposal, I conclude that what Annandale has intended to convey is, that the polypides do not communicate one with the other; and further that their origin is not from the gelatinous base, therefore a compound colony is not formed. This, indeed, is the case, but since the polyparia do form a colony, his key and diagnosis are amended accordingly.

4. Diagnosis.

Zoarium consists of a circular or oval mass of no great size.

Polyparia forming colonies of 5 to 25 united to, but not intercommunicating *via*, a gelatinous base, on which the colony is capable of movement.

Polypides lying semi-recumbent in the mass, and seldom standing upright in a vertical position.

Statoblasts of considerable size, compared to the size of the polyparium, and normally bearing at either pole a series of from 5 to 9 chitinous processes, armed with a series of small incurved hooks.

5. Key.

Order: Phylactolaemata.
Division: Plumatellina.
Family: Plumatellidae.
Sub-family: Lophopinae.

Statoblasts armed normally with hooked processes.

A. Processes confined to the extremity of the statoblasts; zoaria a circular or oval mass of no great size; polyparia forming colonies of from 5 to 25 united to, but not intercommunicating *via*, a gelatinous base .. .. *Lophopodella*

B. Processes entirely surrounding the statoblasts; many zoaria embedded in a common gelatinous base to form large compound colonies .. . .. *Pectinatella*

6. *Lophopodella picta*[6] *sp. nov.*

Zoarium. A mass of from 5 to 25 polyparia, appearing to the naked eye like a mass of frog's spawn, united to a hyaline, gelatinous mass, on which the whole is capable of movement.

Zooecium. Hyaline and regularly papillose.

Polypide. From 50 to 60 tentacles are borne on a bright yellow lophophore; the muscles show as a brighter yellow; the stomach is green in colour, and the rectum, charged with excretum, blue. The extended part of the polypide averages .60 mm. in length, and the tentacles .35 in length.

Statoblast. The statoblast is elongate oval in shape, measuring on an average .50 mm. in length by .35 mm. in breadth. The capsule is large compared to the swim-ring, it averaging .10 mm. in diameter, and the swim-ring .07 mm. Either pole bears a series of from 4 to 9 chitinous processes of irregular size, the

6. Having reference to the bright colouring of the polypide.

central being the longest, and averaging .3 mm. in length. These processes are armed with a series of small incurved hooks irregularly disposed, and originating from any side of the process; they are not disposed in parallel planes. A short area at the base of the process is without hooks.

Holotype in the Australian Museum (U. 708).

Locality. Nepean River, N.S. Wales, opposite to Glenbrook Creek.

7. Habitat.

The specimens were all found on the leaves of a weed (*Vallisneria spiralis*). The Nepean River is subject to considerable alteration, it being in a state of flood in the rainy season, and low and turbid in the dry season. The locality, at the time of the year that these specimens were taken, is one receiving the full strength of the sun for several hours of the day.

8. Observations.

The species is extraordinarily hardly, the first batch, which had been carried without water from Penrith to the Museum, quickly reviving on being placed in an aquarium after this journey of over sixteen hours. They are not nervous, the tentacles being retracted only when actually touched with a needle point; and they are quickly everted again when the needle is withdrawn.

NOTES ON THE BREEDING OF THE SCRUB TURKEY.

By A. S. Le Souef.

During the present season, 1919-20, seven Scrub Turkeys (*Catheturus lathami*) were hatched in the aviaries at Taronga Park. Several birds were in the enclosure, but in July one male took command, and drove the others away, and started to rake over the ground for debris; several cartloads of leaves and garden rubbish were supplied which he industriously collected into a large heap in one corner of the enclosure, and by September a good heat had developed. In this month, too, the wattles of the male developed and became very bright in colour. The hen bird was not allowed to take any part in the preparation of the mound; in fact, she was seldom allowed in the aviary at all. Being unpinioned, she could escape, and spent most of her time in an adjoining shrubbery. The actual egg-laying was not detected. Seven young birds were hatched from the mound, and came out on the following dates:—December 2nd, 6th, 15th, 17th, 31st, January 6th, 9th.

The first bird hatched flew out of the enclosure, over a fence 8 feet high, when only out of the mound a few hours. It weighed four ounces when one day old.

When hatched, the birds were covered with downy feathers, but the primary wing feathers were well developed. They grew very rapidly, and were quickly covered with adult plumage. In two months' time they are practically indistinguishable from the parent birds, except that they are about half the size. The grey mottling on the breast may perhaps be a little brighter on the chick.

During the whole of the incubation period the male bird was constant in his attentions to the mound, opening it up in wet weather and heaping it up again afterwards, but from the day that the last chick was hatched he ceased to take any further interest in it. For a month previous to this his neck wattle had been getting less in size, and by the middle of January he was scarcely distinguishable from the female.